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# ASSET MANAGEMENT PLAN UPDATE

2017

CENTRALINES
LIMITED

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This Asset Management Plan (AMP) Update is available for public disclosure and applies for the period 1 April 2017 to 31 March 2027.



# 1. INTRODUCTION

This Asset Management Plan (AMP) Update has been completed pursuant to clause 2.6 of the Electricity Distribution Information Disclosure Determination 2012. It provides details of material changes to critical aspects of the AMP disclosed by Centralines in March 2016, and should be read as supplementary to that document. For the purpose of this AMP Update, material changes are defined as significant deviations from the 2016 AMP with respect to how Centralines manages its assets. Significant process changes, the adoption of new tools and techniques and adding, removing or rescheduling projects in excess of $250,000 are considered material changes.

In order to ensure the latest information is available, various sections and tables which are considered non-material have also been updated and refreshed and are included in this AMP Update.

The purpose of this AMP Update is to ensure that the requirements of the AMP continues to be met in years where it is not compulsory for a full AMP to be disclosed. Centralines will next disclose a full AMP in 2018.

# SECTION 1 SUMMARY OF THE PLAN

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# 1. SUMMARY OF THE PLAN

## 1.2 Introduction to this Document

The Centralines Limited AMP Update is a comprehensive explanation of how the company will develop and manage the lifecycle of its electricity distribution assets over the period 2017 – 2027 to achieve its Asset Management Objectives.

# SECTION 2 **BACKGROUND & OBJECTIVES**


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# 2. BACKGROUND AND OBJECTIVES

## 2.3 Purpose of the Asset Management Plan

### *2.3.2 Objectives of Asset Management and Planning Processes*

To ensure there is a clear *line of sight* through the Asset Management System (AMS), Centralines' Asset Management Objectives are informed directly by the Organisational Strategic Plan and the Asset Management Policy. There are three objectives:

1. **Health and Safety Performance:** Centralines' objective is to achieve an incident free workplace by creating a culture where each person truly believes that "Safety First" is a core value and that working safely is part of all employees' everyday activities. Centralines is committed to the Health and Safety of its Employees, Contractors, Customers and Community.
2. **Customer Service Performance:** Deliver great customer service through provision of a reliable and resilient network at a reasonable price.
3. **Cost and Efficiency Performance:** Improve the efficiency and effectiveness of asset management practices through innovative network and energy solutions.

The current measures that enable Centralines to monitor and improve performance in relation to these objectives are provided in Table 2-1. More detail on Centralines' Customer Service Performance objective and associated measures is provided in Section 3: Service Levels.

| Asset Management Objective | Measure | Current Target (2017/18) |
|---|---|---|
| **Health and Safety Performance** | Accidents causing harm to a member of the public or significant damage to public property | 0 |
| | Serious harm or lost-time injury to employees or contractors | 0 |
| | Injuries to employees or contractors requiring medical treatment | < 2 |
| **Customer Service Performance** | Surveyed Customer Satisfaction with delivery of customer works | > 95% |
| | Average annual number of minutes a customer is without supply (SAIDI) | 99 – 119 |
| | Average annual number of supply interruptions a customer experiences (SAIFI) | 2.9 – 3.5 |
| | Revenue per ICP (nominal) | <$1,644 |
| | Restoration of Supply for unplanned interruptions | See Section 3 |
| **Cost and Efficiency Performance** | Forward work planning horizon at a project level provided to contracting services providers | ≥ 3 years rolling |
| | Operating expenditure per ICP (nominal) | <$425 |
| | Faults per 100km of network | < 6.4 |

*Table 2-1: Asset Management Objectives*

## 2.5 Date of Director Approval

The AMP Update was approved by Centralines' Board of Directors on 29 March 2017.


# SECTION 3 **SERVICE LEVELS**



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# 3. SERVICE LEVELS

## 3.3 Serviced Level Framework

| Asset Management Objective | Service Level | Unit/Type | Service Level Targets | | | | |
|---|---|---|---|---|---|---|---|
| | | | 2016/17 | 2017/18 | 2018/19 | 2019/20-20/21 | 2021/22-26/27 |
| Health and Safety Performance | Accidents causing harm to a member of the public | Number of Accidents | 0 | 0 | 0 | 0 | 0 |
| | Serious harm or lost-time injury to employees or contractors | Number of Injuries | 0 | 0 | 0 | 0 | 0 |
| | Injuries to employees or contractors requiring medical treatment | Number of Injuries | < 2 | < 2 | < 2 | < 2 | < 2 |
| Customer Service Performance | Surveyed Customer Satisfaction | Percentage of Satisfied Customers | > 95% | > 95% | > 95% | > 95% | > 95% |
| | SAIDI | Minutes | 98.80 – 119.07 | 98.80 – 119.07 | 98.80 – 119.07 | 98.80 – 119.07 | 98.80 – 119.07 |
| | SAIFI | Interruptions | 2.84 – 3.52 | 2.84 – 3.52 | 2.84 – 3.52 | 2.84 – 3.52 | 2.84 – 3.52 |
| | Revenue per ICP | $ (nominal) | $1,588 | $1,644 | 1,665 | $1,686-$1,707 | $1728-1,818 |
| | Restoration of Supply for unplanned interruptions | Urban | ≤ 20 events ≥ 3 hours | ≤ 20 events ≥ 3 hours | ≤ 20 events ≥ 3 hours | ≤ 20 events ≥ 3 hours | ≤ 20 events ≥ 3 hours |
| | | Rural | ≤ 10 events ≥ 6 hours | ≤ 10 events ≥ 6 hours | ≤ 10 events ≥ 6 hours | ≤ 10 events ≥ 6 hours | ≤ 10 events ≥ 6 hours |
| | | Remote Rural | ≤ 5 events ≥ 12 hours | ≤ 5 events ≥ 12 hours | ≤ 5 events ≥ 12 hours | ≤ 5 events ≥ 12 hours | ≤ 5 events ≥ 12 hours |
| Cost and Efficiency Performance | Forward work planning horizon | Years | ≥ 1 | ≥ 2 rolling | ≥ 3 rolling | ≥ 3 rolling | ≥ 3 rolling |
| | Operating expenditure per ICP | $ (nominal) | $447 | $425 | $428 | $432 | $461 |
| | Faults per 100km of network | Total | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |

*Table 3-1: Service Level Framework*

# SECTION 4 **NETWORK DEVELOPMENT PLANS**



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# 4. NETWORK DEVELOPMENT PLANS

## 4.11 Output - Network Development Programme

Projects greater than $250,000 are considered material and will be discussed to a greater level of detail. For completeness all projects (material and non-material) planned for 2017/18 and all material projects proposed for 2018/19-2026/27 have been included.

Customer-driven projects where a contract is not in place are not included.

Details of projects for the ten-year planning period are outlined below.

### 4.11.1 *Projects for 2017/18 to 2026/27*

There are no material projects planned for the 2017/18 year.

A summary table describing the confirmed non-material projects for the 2017/18 year is included in Section 4.11.2.

| # | Constraint | Category | Cost | Section |
|---|---|---|---|---|
| **2017/18 Non-Material** | | | | |
| 1 | Reliability and restoration response on rural feeders | Quality of Supply | $210k | 4.11.2 |
| 2 | 11kV capacity constraint, Waipukurau CBD | System Growth | $40k | 4.11.2 |
| 3 | 400V Voltage constraint, Ruataniwha Street, Waipawa CBD | Quality of Supply | $80k | 4.11.2 |
| 4 | Wilder Road Substation - Preparations for substation upgrade | Other Reliability, Safety and Environment | $100k | 4.11.2 |
| 5 | Power quality (voltage) on rural feeders | Quality of Supply | $110k | 4.11.2 |
| 6 | Online Temperature Monitoring – Waipukurau Zone Substation power transformers | Other Reliability, Safety and Environment | $25k | 4.11.2 |
| 7 | Two pole transformer replacement B4/8, Waverley Street, Waipawa | Other Reliability, Safety and Environment | $100k | 4.11.2 |
| 8 | 11kV Relocation – Porangahau Bridge | Other Reliability, Safety and Environment | $120k | 4.11.2 |
| 9 | Load Control Fibre Link | Quality of Supply | $10k | 4.11.2 |
| 10 | Waipawa GXP ION meter installation | Quality of Supply | $35k | 4.11.2 |

| | | | | |
|---|---|---|---|---|
| **2018/19 to 2021/22 Material** | | | | |
| 11 | Reliability and restoration response on rural feeders | Quality of Supply | $830k | 4.11.3 |
| 12 | Wilder Road Substation - Substation upgrade | Other Reliability, Safety and Environment | $300k | 4.11.3 |
| 13 | Voltage Regulation on rural feeders | Quality of Supply | $500k | 4.11.3 |
| 14 | Voltage fluctuation constraint at Takapau Zone Substation | Other Reliability, Safety and Environment | $250k | 4.11.3 |
| 15 | Communications Link, Transpower GXP to Takapau Substation | Other Reliability, Safety and Environment | $625k | 4.11.3 |
| **2022/23 to 2026/27 Material** | | | | |
| 16 | Reliability and restoration response on rural feeders | Quality of Supply | $950k | 4.11.4 |
| 17 | Voltage Regulation on rural feeders | Quality of Supply | $500k | 4.11.4 |

*Table 4-13: Projects for 2017/18 to 2026/27*

### 4.11.2 *Non-Material Projects for 2017/18*

| # | Constraint | Constraint Description | Options | Cost | Preferred Solution |
|---|---|---|---|---|---|
| 1 | Reliability and restoration constraints on rural feeders | Rural feeders often have many assets in complicated configurations spread over a large area. The means that response and restoration times can be significant, affecting customer service and overall network performance.<br><br>Feeders have been assessed and prioritised with the following feeders scheduled for implementation in 2017/18.<br>• Feeder 1 – OngaOnga-Ashley Clinton area<br>• Feeder 83 – Omakere-Elsthorpe area | • **Preferred: Network – Automate key switches**<br>• Network – Install ground fault neutraliser<br>• Non-Network - Reconfigure network<br>• Do nothing | $210k | The preferred solution is the lowest cost solution that will resolve the constraint.<br><br>It will typically result in reducing outage times to a few seconds for approximately half the customers affected by any given outage.<br><br>The switches will also provide additional network information to improve modelling tools going forward.<br><br>Installing a ground fault neutraliser will be very effective for certain types of faults but ineffective for others.<br><br>Reconfiguring the network will ultimately require replacement of other assets that will cost more than the preferred solution to achieve the same result. |

| # | Constraint | Constraint Description | Options | Cost | Preferred Solution |
|---|---|---|---|---|---|
| | | • Feeder 18 – Waipukurau South<br>• Feeder 46 – Herbertville area | | | Doing nothing does not resolve the constraint.<br>The network solution in this instance costs less than the non-network solution. |
| 2 | 11kV capacity constraint, Waipukurau CBD | There is a 50m section of cable in the backbone of the Waipukurau CBD feeder that modelling has indicated is too small for the load it is carrying under certain network configurations. Removing this constraint will reduce the risk of an outage to the Waipukurau CBD should a fault occur. | • **Preferred: Network – Increase existing capacity**<br>• Non–Network Transfer load<br>• Reduce load<br>• Do nothing | $40k | The preferred option is the lowest cost option that resolves the constraint.<br>There are no non-network options that would resolve the constraint. Load transfer creates a constraint on the adjacent circuits and the amount of load reduction required to remove the constraint cannot be reliably or practically achieved. |
| 3 | 400V Voltage constraint, Ruataniwha Street, Waipawa | An issue has been identified where, under certain loading conditions, the voltage will be outside the regulated limits for some customers in the area. This has been confirmed using monitoring equipment in 2016. | • **Preferred: Network – Additional 400V circuit**<br>• Network – Install additional transformer<br>• Increase existing circuit capacity<br>• Non–Network Transfer load<br>• Reduce load<br>• Do nothing | $80k | The preferred option is the lowest cost option that resolves the constraint.<br>It will remove the constraint and increase operational flexibility in the area.<br>Installing an additional transformer would remove the constraint and offer flexibility but there are no 11kV circuits in the affected area to enable this option.<br>Increasing existing capacity will require replacement of existing support structures as well as additional structures. This will cost the same as the preferred option but cause greater inconvenience during construction and not offer the additional operational flexibility.<br>There are no non-network options that would resolve the constraint. Load transfer creates a constraint on the adjacent circuits and the amount of load reduction required to remove the constraint cannot be reliably or practically achieved. |

| # | Constraint | Constraint Description | Options | Cost | Preferred Solution |
|---|---|---|---|---|---|
| 4 | Wilder Road Substation - Preparations for substation upgrade | Wilder Road substation is located on leased land and does not meet the latest standards regarding seismic strength and clearances.<br><br>Part of the options evaluation has identified that the lowest cost construction solution will require additional land.<br><br>The work planned for 2017/18 involves land owner negotiation with provision for formalising the extended lease area before proceeding with more detailed design work for the reconstruction. | • **Preferred: Network – Purchase Additional Land**<br>• Network – extend leased area<br>• Non–Network Retain existing footprint<br>• Remove substation | $100k | The preferred solution ensures the asset meets current standards while providing certainty for the site in future.<br><br>Extending the leased area, while meeting standards, does not provide long term certainty.<br><br>Retaining the existing footprint does not eliminate the potential hazards from any event that may occur at the site.<br><br>Removing or relocating the substation would require significant expenditure on other assets to ensure supply is maintained to the customers. |
| 5 | Power quality (voltage) on rural feeders | Altering loads and load use patterns have created voltage constraints on some rural feeders. Modelling indicates that there are further potential issues on the network.<br><br>Feeders identified and prioritised are:<br>• Feeder 1 – OngaOnga-Ashley Clinton<br>• Feeder 2 – Wakarara-Tikokino<br>• Feeder 18 – Waipukurau South<br>• Feeder 19 – Hatuma-Wanstead<br>• Feeder 45 – Porangahau-Wallingford<br>• Feeder 46 – Herbertville<br>• Feeder 75 – Paget Road-Burnside<br>• Feeder 83 – Omakere-Elsthorpe | • **Preferred: Non-Network – Monitor**<br>• Network – Install voltage regulators<br>• Increase conductor size<br>• Non–Network Transfer load<br>• Reduce load | $110k | Installing monitoring equipment on remote distribution transformers will verify and/or quantify any voltage constraints This will optimise any necessary investment and provide increased data for making operational decisions.<br><br>Installing voltage regulators will resolve any issues but may not be necessary for all constraints.<br><br>Increasing conductor size will resolve most issues but would be optimally carried out as part of the lifecycle of the asset.<br><br>Transferring load may resolve some issues but will require better data to endure constraints are not created elsewhere on the network.<br><br>Reducing load or shifting the timing to the degree necessary is not practical at this stage. It may be an option if developing constraints are detected early enough through monitoring. |

| # | Constraint | Constraint Description | Options | Cost | Preferred Solution |
|---|---|---|---|---|---|
| 6 | Waipawa Zone Transformer Condition | Takapau's Zone Substation transformers were manufactured in 1977. Better knowledge of asset condition will enable the optimal scheduling for end of life replacement when required. | • **Preferred: Non-Network – Online monitoring**<br>• Network – Replace now<br>• Non–Network Increased testing<br>• Transfer load<br>• Reduce load<br>• Fault level reduction | $25k | Online monitoring will provide better information to the Control Centre, as well as providing trending and behavioural characteristics for the assets to determine asset health and enable optimal scheduling for end of life replacement.<br>Replacing the assets now may be unnecessary and deferral by anything more than two years will pay back the investment in the monitoring equipment.<br>Increased, invasive testing is disruptive and may hasten the deterioration of asset condition.<br>Transferring or otherwise reducing the load only inhibits part of the asset aging process as a large portion of asset deterioration is caused by pass through faults. Fault level reduction would address this aspect but further monitoring would still be required in either case to adequately determine asset condition. |
| 7 | Two pole transformer replacement B4/8 Waverley Street, Waipawa | Two pole transformer structures present a seismic risk due to a combination of a high centre of gravity and asset aging. | • **Preferred: Network – Replace with pad mounted transformer**<br>• Network – Replace existing structure<br>• Replace with two smaller single pole transformers<br>• Non–Network Remove and transfer load | $100k | Replacing with a modern equivalent pad mounted transformer reduces the public hazard and improves the aesthetics at a site which is adjacent to a park in central Waipawa.<br>Adjacent transformers are too far away to support load whilst maintaining voltage on an ongoing basis without increasing capacity and conductor size. |

| # | Constraint | Constraint Description | Options | Cost | Preferred Solution |
|---|---|---|---|---|---|
| 8 | 11kV Relocation, Porangahau Bridge | Porangahau is a holiday settlement and the bridge giving road access is often used for fishing. There have been multiple instances of fishing lines contacting the power lines which creates a public safety hazard and a risk to the supply in the area. | • **Preferred: Network – Relocate line away from bridge**<br>• Network – Replace line with cable<br>• Non–Network Install barrier<br>• Signage | $120k | Relocating the line presents the lowest cost solution that will remove the hazard.<br>Replacing the line with cable will also remove the hazard but cost more and present an additional hazard where the cable is attached to the bridge.<br>Installing a barrier will result in an additional hazard between pedestrians and vehicles as well as create longer term maintenance issues.<br>Signage has already been installed but has not been effective. |
| 9 | Load Control Fibre Link | Load management and streetlight control are currently reliant on a radio link. This presents a risk if the radio link fails. A more direct and secure link would provide better security for this key function. | • **Preferred: Network – Install a fibre optic link between the Waipawa GXP and the Waipukurau signal injection plant**<br>• Network – Install a backup radio link<br>• Do nothing | $10k | The most costly portion of the preferred option (the fibre optic cable) is already installed and in service. The cost allocated is just to allow a connection into the existing cable.<br>A second radio link would be more expensive and still subject to some of the risks associated with the existing radio link.<br>Doing nothing presents a risk of failure that remedying will exceed the cost of the preferred option. |
| 10 | Waipawa GXP Ion meter installation | The existing Ion meter is no longer supported by the supplier and does not have the functionality of other meters currently in use. | • **Preferred: Network – Replace the meter**<br>• Do nothing | $35k | Replacing the meter will ensure continued support from the supplier as well as providing extra functionality including power quality measurement and fault detection.<br>Doing nothing means there is a risk of replacement delay at an inconvenient time when a failure occurs. |

*Table 4-14: Non-Material Projects for 2017/18*

### 4.11.3 *Material Projects for 2018/19 to 2021/22*

| # | Constraint | Constraint Description | Options | Cost | Solution |
|---|---|---|---|---|---|
| 11 | Reliability and restoration constraints on rural feeders | Rural feeders often have many assets in complicated configurations spread over a large area. This means that response and restoration times can be significant affecting customer service and overall network performance. | • **Preferred: Network – Automate key switches**<br>• Network – Install ground fault neutraliser<br>• Non-Network - Reconfigure network<br>• Do nothing | $830k | Feeders have been assessed and prioritised with the following feeders scheduled for implementation in 2018/19 - 2021/22.<br>• Feeder 4 – Burnside - Pukeora area<br>• Feeder 74 – Takapau - Otawhao<br>• Feeder 75 – Paget Road area<br>• Feeder 76 – Maharakeke<br>• Feeder 18 – Waipukurau South<br>• Feeder 19 – Hatuma - Wanstead<br>• Feeder 1 – OngaOnga – Ashley Clinton area<br>• Feeder 46 – Herbertville<br>• Feeder 86 – Otane<br>• Feeder 83 – Elsthorpe<br>• Feeder 88 – Pourerere |
| 12 | Wilder Road Substation upgrade | Wilder Road Substation is located on leased land and does not meet existing standards regarding seismic strength and safety distances.<br>Part of the options evaluation has identified that the lowest cost construction solution will require additional land.<br>The work planned (assuming successful land owner negotiations in 2017/18) will include seismic strengthening, improved oil spill retention, increased electrical safety distances and more flexible operating connectivity. | • **Preferred: Network – Upgrade substation**<br>• Network – relocated substation<br>• Non–Network Retain existing footprint<br>• Remove substation | $300k | The preferred solution ensures the asset meets current standards while providing certainty for the site in future.<br>Relocating the substation will cost significantly more than rebuilding and may result in a suboptimal location for supplying the local area.<br>Retaining the existing footprint does not eliminate the potential hazards from any event that may occur at the site.<br>Removing or relocating the substation would require significant expenditure on other assets to ensure supply is maintained to the customers. |

| # | Constraint | Constraint Description | Options | Cost | Solution |
|---|---|---|---|---|---|
| 13 | Power quality (voltage) on rural feeders | Altering loads and load use patterns have created voltage constraints on some rural feeders. Modelling indicates that there are further potential issues on the network. | • **Preferred: Non - Network – Monitor**<br>• Network – Install voltage regulators<br>• Increase conductor size<br>• Non–Network Transfer load<br>• Reduce load | $500k | Installing monitoring equipment on remote distribution transformers will verify and/or quantify any voltage constraints This will optimise any necessary investment and provide increased data for making operational decisions.<br>Installing voltage regulators will resolve any issues but may not be necessary for all constraints.<br>Increasing conductor size will resolve most issues but would be optimally carried out as part of the lifecycle of the asset.<br>Transferring load may resolve some issues but will require better data to endure constraints are not created elsewhere on the network.<br>Reducing load or shifting the timing to the degree necessary is not practical at this stage. It may be an option if developing constraints are detected early enough through monitoring.<br>The amount budgeted is provisional, subject to the results obtained by monitoring equipment and assumes constraints are identified and some mitigation is required. |
| 14 | Voltage fluctuation constraint at Takapau Zone Substation | Operation of the protection at Takapau Zone Substation results in voltage dips under fault conditions. | • **Preferred: Network Install 33kV feeder protection relay and 33kV voltage transformers**<br>• Do nothing | $250k | The preferred option is the lowest cost option that resolves the constraint.<br>It will enable fast power system fault clearance and unitised protection.<br>There are no non-network options that would resolve the constraint. |
| 15 | Protection operation speed at Takapau Zone Substation | The upgraded protection at Takapau Zone Substation will require improved communications as extra data is used to operate the scheme. | • **Preferred: Network Install Fibre communica-tions link to Transpower GXP**<br>• Do nothing | $625k | The preferred option is the lowest cost option that resolves the constraint.<br>It will enable fast power system fault clearance and unitised protection.<br>There are no non-network options that would resolve the constraint. |

*Table 4-15: Material Projects for 2018/19 to 2021/22*

### 4.11.4 *Material Projects for 2022/23 to 2026/27*

All projects for 2022 to 2027 are in the initial identification stage. High level solutions have been identified and costs have been estimated for the solutions identified as preferred, however all constraints and possible solutions will be reviewed during annual planning to confirm the constraints still exist and, the timing of the constraints have not changed. More detailed investigation into the solutions will be undertaken closer to the planned commencement of the project.

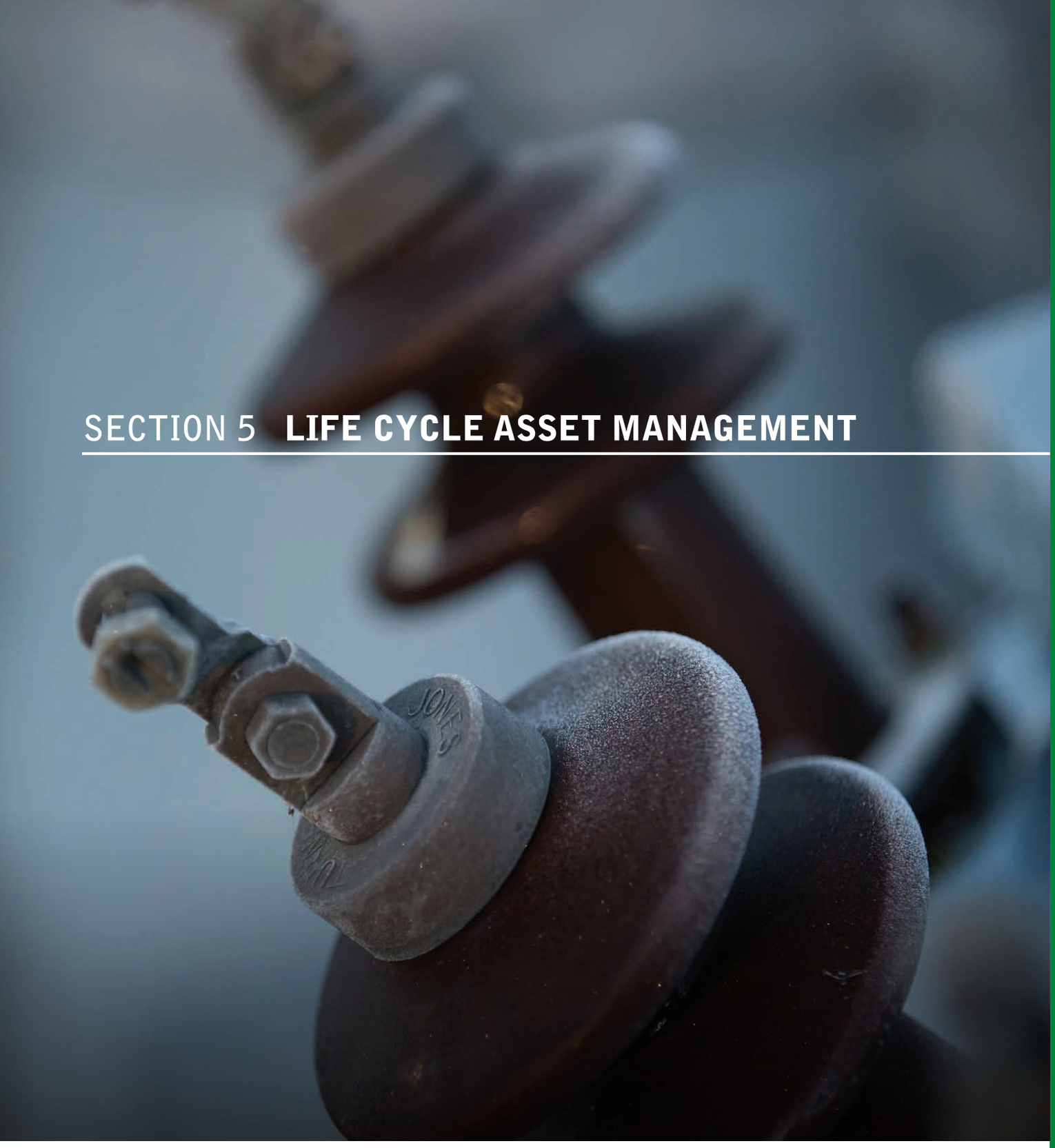
Network development works for this period will be dependent on the energy demand growth experienced on the network. Most energy demand growth on the Centralines' network for the planning period is expected to be driven by customer-driven works and are not included here.

Customers have indicated that the trade-off between reliability and price are appropriate and as a result it is suggested that further investment will generally be limited to relatively minor upgrades to the worst-performing feeders to ensure that customers currently experiencing poor reliability on feeders are progressively upgraded.

Safety-driven upgrades are expected to remain relatively minor during the planning period, due to the relatively robust nature of the network, age profiles of the assets and the relatively high levels of investment in renewals and replacements that are discussed in Section 5.

| # | Title | Constraint Description | Options | Cost |
|---|---|---|---|---|
| 16 | Reliability constraints on Rural feeders | Rural feeders often have many assets in complicated configurations spread over a large area. The means that response and restoration times can be significant affecting customer service and overall network performance. | • **Preferred: Network – Automate key switches**<br>• Network – Install ground fault neutraliser<br>• Non-Network - Reconfigure network<br>• Do nothing | $950k |
| 17 | Power quality (voltage) on Rural feeders | Altering loads and load use patterns have created voltage constraints on some rural feeders. Modelling indicates that there are further potential issues on the network.<br>The amount budgeted is provisional, subject to the results obtained by monitoring equipment and assumes constraints are identified and some mitigation is required. | • **Preferred: Non - Network – Monitor**<br>• Network – Install voltage regulators<br>• Increase conductor size<br>• Non–Network Transfer load<br>• Reduce load | $500k |

*Table 4-16: Material Projects for 2022/23 to 2026/27*




# SECTION 5 LIFE CYCLE ASSET MANAGEMENT



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# 5. LIFECYCLE ASSET MANAGEMENT PLANNING

## 5.33 Renewal Project List 2017-2018

| Asset Category | Project Description | Project Budget ($000) |
|---|---|---|
| Sub-transmission Lines | Wilder Road, 33kV Line Refurbishment, Stage 6 | 150 |
| Sub-transmission Lines | Wilder Road, 33kV Line Refurbishment, Stage 5 (carry over from 2016/17) | 120 |
| Distribution and LV Lines | Replace Mainline 11kV Copper Conductor Adjacent to Primary School Between Poles 907753 and 908434 in Nancy Street, Takapau | 125 |
| Distribution Substations, Transformers | Replace Transformer C4/203 | 65 |
| Distribution and LV Lines | Pole Replacements following feeder Inspections | 300 |
| Distribution and LV Lines | Church Street 11kV Replacement | 40 |
| Distribution and LV Lines | Provisional sum for unplanned and reactive replacements | 250 |

*Table 5-1: Renewal Project List 2017-2018*


# SECTION 6 NON-NETWORK DEVELOPMENT MAINTENANCE & RENEWAL

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# 6. NON-NETWORK DEVELOPMENT MAINTENANCE & RENEWAL

## 6.2 Property

### *6.2.3 Material Capital Expenditure Projects Planned for the Next Five Years*

The following table details a proposed capital project.

| Project | Description |
|---|---|
| Earthquake Strengthening | Assessments have been completed on both the Centralines' Peel Street depot and Coughlan Road storage yard buildings. Some mitigation is required with work scheduled to be carried out in 2017/18. The storage yard buildings will be completed as part of a network project as strengthening work is also required on the Waipukurau Substation building which is on the same site. |

*Table 6-1: Material Capital Expenditure Projects Planned for the Next Five Years*

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# 7. RISK MANAGEMENT

## 7.7 Emergency Response and Contingency Plans

### *7.7.2 Business Continuity Management*

Business Continuity Management is a process that identifies potential threats to the organisation as well as the impacts of those threats on business operations. It provides a framework for building organisational resilience and includes response capability to safeguard the interests of Centralines' key stakeholders, reputation, brand and value-creating activities.

During the 2015 financial year, a comprehensive organisational resilience review was completed by Centralines' Management Services Provider, Unison Networks Limited. As a result of this review, key projects to enhance organisational resilience have been initiated. Since Unison provides essential network management services to Centralines, improved network resilience during a major event will benefit Centralines directly. Progress on these major projects is detailed below.

- In June 2016, the containerised data centre went fully operational. The containerised data centre is elevated from the ground and placed on base isolators to provide increased resilience to significant seismic shaking and liquefaction. The data centre is external to the administration building to maintain operations in the event access to the main administration building is inaccessible.
- In December 2016, the purpose built "hot site" for the alternate operations centre, crisis management team and business critical recovery functions was completed. The "hot site" is strategically located in Havelock North where there is a lower risk of liquefaction, tsunami and flood hazards, than the previous alternate operations centre at Eastbourne Street, Hastings. The "hot site" includes N-1 fibre capability and is built to 100% of Importance Level 4 under the building standard.
- An upgraded 'Disaster Recovery' (DR) container will be located at the "hot site" in Havelock North is on track for completion in March 2017.

The physical attributes that provide an organisationally resilient system are underpinned by a number of continuity plans which Centralines' Management Services Provider has put in place to guide an effective and efficient response and recovery, should an event materialise.

These plans are detailed in Figure 7-5.

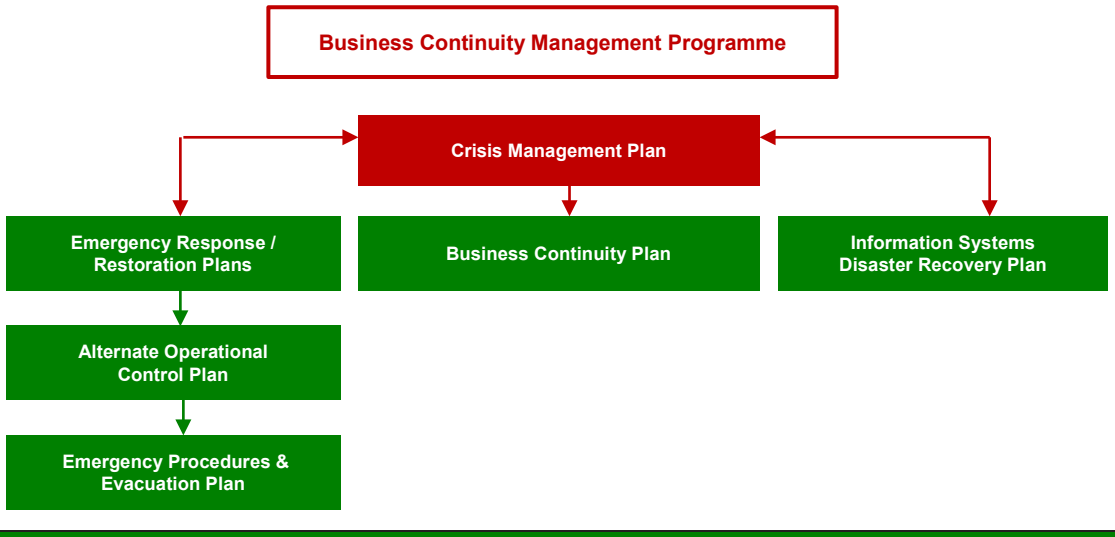


*Figure 7-5: Centralines' Business Continuity Management Programme*

#### 7.7.2.1 *Crisis Management Plan*

The Crisis Management Plan is a key document in the Business Continuity Management Programme. Under the Management Services Agreement, Centralines is included in Unison's Crisis Management Plan. This provides Centralines with a framework to effectively manage any crisis event. It is focused on time-limited, problem-solving interventions to respond to crisis situations and to facilitate the restoration of core services. The success of the plan is dependent on clearly assigned and understood roles, responsibilities and delegations, as well as escalation procedures and coordinated response activities.

# SECTION 8 EVALUATION OF PERFORMANCE

CENTRALINES
LIMITED

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# 8. EVALUATION OF PERFORMANCE

## 8.1 Introduction to this Section

Section 8: Evaluation of Performance provides information to enable stakeholders to understand how well Centralines is performing as an asset management organisation. The key performance dimensions covered are: physical and financial progress against the plans set out in the last disclosed AMP, performance against service level targets, and assessment under the Asset Management Maturity Assessment Tool. It is intended that the sections below will replace relevant sections of Section 8 in the 2016 AMP.

## 8.2 Review of Progress Against Plan

In this section Centralines' performance in delivering the plans set out in the AMP disclosed in March 2016 is reviewed in terms of physical progress (commissioning of works) and financial progress (cost performance). This evaluation is undertaken for the 2015/16 and 2016/17 financial years, for both capital and maintenance programmes.

### *8.2.2 Physical Progress of Planned Capital Projects – 2015/16 (carryover)*

| Project | Category | Status | Comments |
|---|---|---|---|
| Takapau Substation – Removal of 11kV Overhead Structure | Asset Replacement and Renewal | Complete | |
| Wilder Road 33kV Feeder Upgrade (Phases 3 to 5) | Asset Replacement and Renewal | Complete | |

*Table 8-2: Physical Progress of Planned Capital Projects – 2015/16 (carryover)*

### *8.2.3 Physical Progress of Planned Renewal Projects – 2016/17*

| Ref | Project | Category | Status | Planned Spend ($'000s) | Actual Spend ($'000s) | Comments |
|---|---|---|---|---|---|---|
| 39808 | Wilder Road Stage 5 | Asset Replacement and Renewal | In Design | 150 | 30 | Will carry over due to diverson of resources to customer work. |
| 39810 | Install new 33kV ripple CB at Waipukurau Zone Substation | Reliability, Safety and Environment | WIP | 120 | NA | On track for completion by 31 March 2017. |
| 39802 | Pole renewals Feeder 19 | Asset Replacement and Renewal | Complete | 100 | 98 | On track for completion by 31 March 2017. |
| 39807 | Replace 2 pole mounted TX C4/6 with a 200kVA pad mount | Reliability, Safety and Environment | Complete | 45 | 82 | |
| 39801 | Pole renewals Feeder 4 | Asset Replacement and Renewal | Complete | 72 | 2 | |
| 39803 | Pole renewals Feeder 91 | Asset Replacement and Renewal | Complete | 71 | 21 | |
| 39811 | Seismic strengthening of the Waipawa Zone Substation | Reliability, Safety and Environment | Complete | 54 | NA | |
| 39813 | Takapau ZS REG-DA upgrade | Quality of Supply | Complete | 50 | NA | |
| 39814 | Waipukurau ZS REG-DA upgrade | Quality of Supply | Complete | 50 | NA | |
| 39809 | Feeder 13 - Install paralelling RCS on Pole 900757 to shift urban customers off Feeder 13 (rural) onto Feeder 15 (urban) | Quality of Supply | WIP | 50 | NA | On track for completion by 31 March 2017. |
| 39804 | Replace 2 pole mounted TX B4/16 with a new seismicaly | Reliability, Safety and Environment | Complete | 42 | 47 | |

| Ref | Project | Category | Status | Planned Spend ($'000s) | Actual Spend ($'000s) | Comments |
|---|---|---|---|---|---|---|
| | approved pole mounted transformer | | | | | |
| 39800 | Pole renewals Feeder 3 | Asset Replacement and Renewal | Complete | 30 | 15 | |
| 39805 | Reconductor Awahiwi Road | Asset Replacement and Renewal | WIP | 30 | NA | On track for completion by 31 March 2017. |
| 39806 | Reconductor Settlement Road | Asset Replacement and Renewal | Complete | 22 | 18 | |

*Table 8-3: Physical Progress of Planned Capital Projects – 2016/17*

### *8.2.5 Financial Progress 2015/16*

| Spend Category | Forecasted Expenditure from 2015/16 AMP ($'000s) | Actual Expenditure ($'000s) | Variance % | Explanation of Variances ( +/-10% ) |
|---|---|---|---|---|
| Consumer Connection | 300 | 404 | 35% | The Customer Contributions overspend was due to an increased demand for customer connections. |
| System Growth | 430 | 370 | -14% | Initial project budgets were over-estimated. |
| Asset Replacement and Renewal | 1,600 | 972 | -40% | Pole inspections identified less pole replacements than anticipated. |
| Asset Relocations | 120 | 103 | -14% | There were less than anticipated assets requiring relocation during the 2015/2016 financial year. |
| Reliability, Safety and Environment | 440 | 439 | -0% | |
| Network Capex | 2,890 | 2,288 | -21% | |

| Maintenance Category | Forecasted Expenditure from 2015/16 AMP ($'000s) | Actual Expenditure ($'000s) | Variance % | Explanation of variances ( +/-10% ) |
|---|---|---|---|---|
| Service Interruptions and Emergencies | 272 | 271 | 0% | |
| Vegetation Management | 555 | 483 | -13% | Expenditure was less than forecast as the use of external contractors was less than expected. |
| Routine and Corrective Maintenance and Inspections | 195 | 107 | -45% | Efficiencies including use of aerial surveys resulted in a significant underspend. |
| Asset Replacement and Renewal | 399 | 452 | 13% | Budgets were stretched due to both of the main feeder jobs being located out at the coast. This resulted in a higher than anticipated cost of travel and also lost production time. Also, a lot more defect work was completed than anticipated. Both of these factors, resulted in actual expenditure being higher for Asset Replacement and Renewal than forecast. |
| Network Maintenance | 1,421 | 1,313 | -4% | |

*Table 8-5: Financial Progress Opex and Capex 2015/16*

### *8.2.6 Financial Progress 2016/17*

| Spend Category | Forecasted Expenditure from 2015/16 AMP ($'000s) | Forecasted Expenditure ($'000s) | Variance % | Explanation of variances ( +/-10% ) |
|---|---|---|---|---|
| Consumer Connection | 300 | 500 | 67% | Higher than anticipated customer connections. |
| System Growth | 10 | 0 | -100% | Minimal power quality issues raised or identified during the year. |
| Asset Replacement and Renewal | 802 | 720 | -10% | Some of Wilder Road expected to carryover (-$120k).<br>Pole replacements lower than budgeted (-$164k).<br>Unplanned and reactive spend lower than expected (-$120k).<br>Offset by transfer of RSE projects transferred (+$365k refer below). |
| Asset Relocations | 110 | 43 | -61% | Lower than anticipated customer requests. |
| Reliability, Safety and Environment | 490 | 119 | -76% | $365k of projects re-categorised as Asset Replacement and Renewal. |
| Network Capex | 1,712 | 1,382 | -19% | |
| **Maintenance Category** | **Forecasted Expenditure from 2015/16 AMP ($'000s)** | **Forecasted Expenditure ($'000s)** | **Variance %** | **Explanation of variances ( +/-10% )** |
| Service Interruptions and Emergencies | 258 | 336 | 30% | Higher than planned spend on first response activities. |
| Vegetation Management | 512 | 517 | 1% | |
| Routine and Corrective Maintenance and Inspections | 188 | 109 | -42% | Ongoing efficiencies in inspection process resulting in decreased spend. |
| Asset Replacement and Renewal | 465 | 431 | -7% | |
| Network Maintenance | 1,423 | 1,393 | -2% | |

*Table 8-6: Financial Progress Opex and Capex 2016/17*

## 8.3 Review of Service Level Performance

The Service Level framework changed for the 2015/16 financial year, corresponding to the start of the new regulatory period and implementation of new Asset Management Objectives.

### *8.3.2 Service Level Performance 2015/16*

Table 8-8 shows current service level framework with targets as per Section 3 and actuals/forecasts for 2015/16 where available for year-end.

| Asset Management Objective | Service Level | Unit/Type | Target 2015/16 | Forecast 2015/16 | Actual 2015/16 | Comments |
|---|---|---|---|---|---|---|
| Health and Safety Performance | Accidents causing harm to a member of the public | Number of accidents | 0 | 0 | 0 | Service Level Target Met |
| | Serious harm or lost-time injury to employees or contractors | Number of injuries | 0 | 0 | 1 | Service Level Target Not Met |
| | Injuries to employees or contractors requiring medical treatment | Number of injuries | < 2 | 0 | 1 | Service Level Target Met |
| Customer Service Performance | Surveyed customer satisfaction with delivery of customer works | % | > 95% | > 95% | 100% | Service Level Target Met |
| | Average annual number of minutes a customer is without supply (SAIDI) | Minutes | 98.80 – 119.07 | 71.38 | 72.67 | Service Level Target Met & Exceeded |
| | Average annual number of supply interruptions a customer experiences (SAIFI) | Interruptions | 2.84 – 3.52 | 1.4 | 1.4 | Service Level Target Met & Exceeded |
| | Revenue per ICP | $ (nominal) | $1,588 | $1,588 | $1,522 | Service Level Target Not Met |
| | | Urban | ≤ 20 events ≥ 3 hours | < 20 | 0 | Service Level Target Met |

| Asset Management Objective | Service Level | Unit/Type | Target 2015/16 | Forecast 2015/16 | Actual 2015/16 | Comments |
|---|---|---|---|---|---|---|
| | Restoration of Supply for unplanned interruptions | Rural | ≤ 10 events ≥ 6 hours | < 10 | 1 | Service Level Target Met |
| | | Remote rural | ≤ 5 events ≥ 12 hours | < 5 | 0 | Service Level Target Met |
| Cost and Efficiency Performance | Forward work planning at a project level provided to contracting services providers | Years | ≥ 1 | 1 year | 1 year | Service Level Target Met |
| | Operating expenditure per ICP (nominal) | $ (nominal) | < $444 | $403 | $385 | Service Level Target Met |
| | Faults per 100km of network | Total | <6.2 | NA | 5.26 | Service Level Target Met |
| | | Overhead | <7.6 | NA | 5.31 | Service Level Target Met |
| | | Underground | < 7.4 | NA | 3.11 | Service Level Target Met |

*Table 8-8: Service Level Performance 2015/16*

### *8.3.3 Service Level Performance 2016/17*

Table 8-9 shows current service level framework with targets as per Section 3 and actuals/forecasts for 2016/17 where available for year-end.

| Asset Management Objective | Service Level | Unit/Type | Target 2016/17 | Forecast 2016/17 | Comments |
|---|---|---|---|---|---|
| Health and Safety Performance | Accidents causing harm to a member of the public | Number of accidents | 0 | 0 | On Target |
| | Serious harm or lost-time injury to employees or contractors | Number of injuries | 0 | 2 | Service Level Target Not Met |
| | Injuries to employees or contractors requiring medical treatment | Number of injuries | <2 | 1 | On Target |

| Asset Management Objective | Service Level | Unit/Type | Target 2016/17 | Forecast 2016/17 | Comments |
|---|---|---|---|---|---|
| Customer Service Performance | Surveyed customer satisfaction with delivery of customer works | % | > 95% | > 95% | On Target |
| | Average annual number of minutes a customer is without supply (SAIDI) | Minutes | 98.80 – 119.07 | 96.7 | On Target to Meet and Exceed |
| | Average annual number of supply interruptions a customer experiences (SAIFI) | Interruptions | 2.84 – 3.52 | 1.73 | On Target to Meet and Exceed |
| | Revenue per ICP | $ (nominal) | $1,690 | $1,562 | Service Level Unlikely to be Met |
| | Restoration of Supply for unplanned interruptions | Urban | <20 | 0 | On Target |
| | | Rural | <10 | 4 | On Target |
| | | Remote rural | <5 | 0 | On Target |
| Cost and Efficiency Performance | Forward work planning at a project level provided to contracting services providers | Years | ≥2 years rolling | 2 years | On Target |
| | Operating expenditure per ICP (nominal) | $ (nominal) | <$447 | $422 | On Target |
| | Faults per 100km of network | Total | <6.2 | 7.00 | Service Level not Met |
| | | Overhead | <7.6 | 7.08 | On Target |
| | | Underground | < 7.4 | 3.42 | On Target |

*Table 8-9: Service Level Performance 2016/17*

## 8.5 Health and Safety Performance

### *8.5.4 Employee Safety*

#### *8.5.4.1 Employee Safety Performance*

Lost time injuries is the only Health and Safety service level objective that is forecasted not to be met for 2016/17.

The lost-time injury was a knee strain sustained by an employee in October 2016. This was as a result of an employee stepping backwards into a hole when tensioning a rope. Staff have been reminded of the need to do a thorough 360° check that not only includes vehicles but also the worksite and surrounding areas.

Additionally, while lost time and medical treatment injuries were forecasted to be at zero for 2015/16, one late lost time injury and one late medical treatment injury occurred in February 2016. Both of these were related to a truck tip over. One employee received a blow to the head and one injured his hip. As a result of this incident, level two and three driver training programmes will be completed over the next two years. Four-wheel drive truck training for all field staff will be completed when an appropriate course can be identified and scheduled.

# SECTION 9 **CAPABILITY TO DELIVER**



CENTRALINES
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## NO MATERIAL CHANGES

# SECTION 10 **SCHEDULES**



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# 11a: Report on Forecast Capital Expenditure

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

| 11a(i): Expenditure on Assets Forecast | | Current Year | CY+1 | CY+2 |
|---|---|---|---|---|
| | for year ended | 31 Mar 17 | 31 Mar 18 | 31 Mar 19 |
| | | $000 (in nominal dollars) | | |
| | Consumer connection | 500 | 300 | 315 |
| | System growth | - | 40 | - |
| | Asset replacement and renewal | 720 | 950 | 955 |
| | Asset relocations | 43 | 50 | 52 |
| | Reliability, safety and environment: | | | |
| | Quality of supply | - | 455 | 220 |
| | Legislative and regulatory | - | 100 | 58 |
| | Other reliability, safety and environment | 119 | 365 | 724 |
| | **Total reliability, safety and environment** | **119** | **920** | **1,003** |
| | **Expenditure on network assets** | **1,382** | **2,260** | **2,326** |
| | Non-network assets | 182 | 1,088 | 283 |
| | **Expenditure on assets** | **1,564** | **3,348** | **2,609** |
| | | | | |
| ***plus*** | Cost of financing | - | - | - |
| ***less*** | Value of capital contributions | 305 | 273 | 315 |
| ***plus*** | Value of vested assets | - | - | - |
| | | | | |
| | **Capital expenditure forecast** | **1,259** | **3,075** | **2,294** |
| | | | | |
| | Value of commissioned assets | | | |
| | | | | |
| | | $000 (in constant prices) | | |
| | Consumer connection | 500 | 293 | 300 |
| | System growth | - | 39 | - |
| | Asset replacement and renewal | 720 | 927 | 910 |
| | Asset relocations | 43 | 49 | 50 |
| | Reliability, safety and environment: | | | |
| | Quality of supply | - | 444 | 210 |
| | Legislative and regulatory | - | 98 | 55 |
| | Other reliability, safety and environment | 119 | 356 | 690 |
| | **Total reliability, safety and environment** | **119** | **898** | **955** |
| | **Expenditure on network assets** | **1,382** | **2,206** | **2,215** |
| | Non-network assets | 182 | 1,062 | 270 |
| | **Expenditure on assets** | **1,564** | **3,267** | **2,485** |
| | | | | |
| **Subcomponents of expenditure on assets (where known)** | | | | |
| | Energy efficiency and demand side management, reduction of energy losses | | | |
| | Overhead to underground conversion | - | 50 | 50 |
| | Research and development | | | |

| *CY+3* 31 Mar 20 | *CY+4* 31 Mar 21 | *CY+5* 31 Mar 22 | *CY+6* 31 Mar 23 | *CY+7* 31 Mar 24 | *CY+8* 31 Mar 25 | *CY+9* 31 Mar 26 | *CY+10* 31 Mar 27 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 321 | 327 | 333 | 339 | 345 | 351 | 357 | 363 |
| - | - | - | - | - | - | - | - |
| 948 | 884 | 817 | 1,346 | 1,312 | 1,335 | 929 | 945 |
| 54 | 55 | 56 | 124 | 127 | 129 | 131 | 133 |
| | | | | | | | |
| 536 | 633 | 845 | 351 | 299 | 785 | 310 | 315 |
| 21 | 22 | 22 | 23 | - | - | - | - |
| 445 | 357 | 378 | 272 | 334 | 310 | 363 | 321 |
| **1,002** | **1,012** | **1,245** | **645** | **633** | **1,095** | **673** | **636** |
| **2,325** | **2,278** | **2,450** | **2,455** | **2,418** | **2,911** | **2,091** | **2,077** |
| 520 | 464 | 361 | 300 | 606 | 580 | 161 | 164 |
| **2,844** | **2,742** | **2,812** | **2,755** | **3,023** | **3,490** | **2,252** | **2,241** |
| | | | | | | | |
| - | - | - | - | - | - | - | - |
| 321 | 327 | 333 | 339 | 345 | 351 | 357 | 363 |
| - | - | - | - | - | - | - | - |
| | | | | | | | |
| **2,523** | **2,415** | **2,478** | **2,415** | **2,678** | **3,139** | **1,894** | **1,878** |
| | | | | | | | |
| | | | | | | | |
| 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| - | - | - | - | - | - | - | - |
| 885 | 810 | 735 | 1,190 | 1,140 | 1,140 | 780 | 780 |
| 50 | 50 | 50 | 110 | 110 | 110 | 110 | 110 |
| | | | | | | | |
| 500 | 580 | 760 | 310 | 260 | 670 | 260 | 260 |
| 20 | 20 | 20 | 20 | - | - | - | - |
| 415 | 328 | 340 | 240 | 290 | 265 | 305 | 265 |
| **935** | **928** | **1,120** | **570** | **550** | **935** | **565** | **525** |
| **2,170** | **2,088** | **2,205** | **2,170** | **2,100** | **2,485** | **1,755** | **1,715** |
| 485 | 425 | 325 | 265 | 526 | 495 | 135 | 135 |
| **2,655** | **2,513** | **2,530** | **2,435** | **2,626** | **2,980** | **1,890** | **1,850** |
| | | | | | | | |
| | | | | | | | |
| 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| | | | | | | | |

| | Current Year | CY+1 | CY+2 |
|---|---|---|---|
| *for year ended* | 31 Mar 17 | 31 Mar 18 | 31 Mar 19 |
| **Difference between nominal and constant price forecasts** | $000 | | |
| Consumer connection | - | 7 | 15 |
| System growth | - | 1 | - |
| Asset replacement and renewal | - | 23 | 45 |
| Asset relocations | - | 1 | 2 |
| Reliability, safety and environment: | | | |
| Quality of supply | - | 11 | 10 |
| Legislative and regulatory | - | 2 | 3 |
| Other reliability, safety and environment | - | 9 | 34 |
| **Total reliability, safety and environment** | **-** | **22** | **48** |
| **Expenditure on network assets** | **-** | **54** | **111** |
| Non-network assets | - | 26 | 13 |
| **Expenditure on assets** | **-** | **81** | **124** |

## 11a(ii): Consumer Connection

| | Current Year | CY+1 | CY+2 |
|---|---|---|---|
| *for year ended* | 31 Mar 17 | 31 Mar 18 | 31 Mar 19 |
| ***Consumer types defined by EDB**** | $000 (in constant prices) | | |
| Simple | 500 | 293 | 300 |
| **Consumer connection expenditure** | **500** | **293** | **300** |
| *less* Capital contributions funding consumer connection | 305 | 266 | 300 |
| **Consumer connection less capital contributions** | **195** | **26** | **-** |

## 11a(iii): System Growth

| | | | |
|---|---|---|---|
| Sub-transmission | | - | - |
| Zone substations | | - | - |
| Distribution and LV lines | | 39 | - |
| Distribution and LV cables | | - | - |
| Distribution substations and transformers | | - | - |
| Distribution switchgear | | - | - |
| Other network assets | | - | - |
| **System growth expenditure** | **-** | **39** | **-** |
| *less* Capital contributions funding system growth | | | |
| **System growth less capital contributions** | **-** | **39** | **-** |

## 11a(iv): Asset Replacement and Renewal

| | | | |
|---|---|---|---|
| Sub-transmission | 29 | - | - |
| Zone substations | 216 | - | - |
| Distribution and LV lines | 327 | 864 | 810 |
| Distribution and LV cables | 5 | - | - |
| Distribution substations and transformers | 141 | 63 | - |
| Distribution switchgear | 2 | - | 100 |
| Other network assets | - | - | - |
| **Asset replacement and renewal expenditure** | **720** | **927** | **910** |
| *less* Capital contributions funding asset replacement and renewal | - | - | - |
| **Asset replacement and renewal less capital contributions** | **720** | **927** | **910** |

| *CY+3* 31 Mar 20 | *CY+4* 31 Mar 21 | *CY+5* 31 Mar 22 | *CY+6* 31 Mar 23 | *CY+7* 31 Mar 24 | *CY+8* 31 Mar 25 | *CY+9* 31 Mar 26 | *CY+10* 31 Mar 27 |
|---|---|---|---|---|---|---|---|
| 21 | 27 | 33 | 39 | 45 | 51 | 57 | 63 |
| - | - | - | - | - | - | - | - |
| 63 | 74 | 82 | 156 | 172 | 195 | 149 | 165 |
| 4 | 5 | 6 | 14 | 17 | 19 | 21 | 23 |
| | | | | | | | |
| 36 | 53 | 85 | 41 | 39 | 115 | 50 | 55 |
| 1 | 2 | 2 | 3 | - | - | - | - |
| 30 | 30 | 38 | 32 | 44 | 45 | 58 | 56 |
| **67** | **85** | **125** | **75** | **83** | **160** | **108** | **111** |
| **155** | **191** | **245** | **285** | **318** | **426** | **336** | **362** |
| 35 | 39 | 36 | 35 | 80 | 85 | 26 | 29 |
| **189** | **229** | **282** | **320** | **397** | **510** | **362** | **391** |

| *CY+3* 31 Mar 20 | *CY+4* 31 Mar 21 | *CY+5* 31 Mar 22 |
|---|---|---|
| 300 | 300 | 300 |
| **300** | **300** | **300** |
| 300 | 300 | 300 |
| **-** | **-** | **-** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | | | | | | | |
| **-** | **-** | **-** | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| - | - | - | - | - | - | - | - |
| - | - | - | 500 | 450 | 450 | - | - |
| 830 | 755 | 680 | 680 | 680 | 680 | 680 | 680 |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| 55 | 55 | 55 | 10 | 10 | 10 | 100 | 100 |
| - | - | - | - | | - | - | - |
| **885** | **810** | **735** | **1,190** | **1,140** | **1,140** | **780** | **780** |
| | | | | | | | |
| - | - | - | | | | | |
| **885** | **810** | **735** | | | | | |

## 11a(v):Asset Relocations

| | for year end | Current Year 31 Mar 17 | CY+1 31 Mar 18 | CY+2 31 Mar 19 |
|---|---|---|---|---|
| | ***Project or programme**** | **$000 (in constant prices)** | | |
| | Distribution and LV cables | 27 | 20 | 20 |
| | Distribution substations and transformers | 11 | 20 | 20 |
| | Distribution switchgear | 5 | 10 | 10 |
| | All other asset relocations projects or programmes | - | - | - |
| | **Asset relocations expenditure** | **43** | **49** | **50** |
| ***less*** | Capital contributions funding asset relocations | - | - | - |
| | **Asset relocations less capital contributions** | **43** | **49** | **50** |

## 11a(vi):Quality of Supply

| | for year end | Current Year 31 Mar 17 | CY+1 31 Mar 18 | CY+2 31 Mar 19 |
|---|---|---|---|---|
| | ***Project or programme**** | **$000 (in constant prices)** | | |
| | Subtransmission | - | - | - |
| | Zone substations | - | - | - |
| | Distribution and LV lines | - | 10 | 10 |
| | Distribution and LV cables | - | - | - |
| | Distribution substations and transformers | - | 107 | - |
| | Distribution switchgear | - | 283 | 200 |
| | Other network assets | - | 44 | - |
| | All other quality of supply projects or programmes | - | - | - |
| | **Quality of supply expenditure** | **-** | **444** | **210** |
| ***less*** | Capital contributions funding quality of supply | - | - | - |
| | **Quality of supply less capital contributions** | **-** | **444** | **210** |

## 11a(vii): Legislative and Regulatory

| | ***Project or programme**** | | | |
|---|---|---|---|---|
| | Subtransmission | - | - | - |
| | Zone substations | - | 98 | 55 |
| | Distribution and LV lines | - | - | - |
| | Distribution and LV cables | - | - | - |
| | Distribution substations and transformers | - | - | - |
| | Distribution switchgear | - | - | - |
| | Other network assets | - | - | - |
| | All other legislative and regulatory projects or programmes | - | - | - |
| | **Legislative and regulatory expenditure** | **-** | **98** | **55** |
| ***less*** | Capital contributions funding legislative and regulatory | - | - | - |
| | **Legislative and regulatory less capital contributions** | **-** | **98** | **55** |

| CY+3<br>31 Mar 20 | CY+4<br>31 Mar 21 | CY+5<br>31 Mar 22 |
|---|---|---|
| 20 | 20 | 20 |
| 20 | 20 | 20 |
| 10 | 10 | 10 |
| | | |
| - | - | - |
| **50** | **50** | **50** |
| - | - | - |
| **50** | **50** | **50** |

| CY+3<br>31 Mar 20 | CY+4<br>31 Mar 21 | CY+5<br>31 Mar 22 | CY+6<br>31 Mar 23 | CY+7<br>31 Mar 24 | CY+8<br>31 Mar 25 | CY+9<br>31 Mar 26 | CY+10<br>31 Mar 27 |
|---|---|---|---|---|---|---|---|
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| 10 | 370 | 310 | 260 | 10 | 670 | 10 | 260 |
| - | - | - | - | - | - | - | - |
| 280 | - | 250 | - | 250 | - | 250 | - |
| 210 | 210 | 200 | 50 | - | - | - | - |
| - | - | - | - | - | - | - | - |
| | | | | | | | |
| - | - | - | | | | | |
| **500** | **580** | **760** | **310** | **260** | **670** | **260** | **260** |
| - | - | - | | | | | |
| **500** | **580** | **760** | | | | | |
| | | | | | | | |
| - | - | - | - | - | - | - | - |
| 20 | 20 | 20 | 20 | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| | | | | | | | |
| - | - | - | | | | | |
| **20** | **20** | **20** | **20** | **-** | **-** | **-** | **-** |
| - | - | - | | | | | |
| **20** | **20** | **20** | | | | | |

## 11a(viii): Other Reliability, Safety and Environment

| | | Current Year | CY+1 | CY+2 |
|---|---|---|---|---|
| | | 31 Mar 17 | 31 Mar 18 | 31 Mar 19 |
| | *Project or programme** | $000 (in constant prices) | | |
| | Subtransmission | - | - | - |
| | Zone substations | 65 | 122 | 525 |
| | Distribution and LV lines | - | 137 | 20 |
| | Distribution and LV cables | - | - | - |
| | Distribution substations and transformers | - | 98 | 145 |
| | Distribution switchgear | 54 | - | - |
| | Other network assets | - | - | - |
| | All other reliability, safety and environment projects or programmes | - | - | - |
| | **Other reliability, safety and environment expenditure** | **119** | **356** | **690** |
| *less* | Capital contributions funding other reliability, safety and environment | - | - | - |
| | **Other reliability, safety and environment less capital contributions** | **119** | **356** | **690** |

## 11a(ix): Non-Network Assets

| | | Current Year | CY+1 | CY+2 |
|---|---|---|---|---|
| | **Routine expenditure** | 31 Mar 17 | 31 Mar 18 | 31 Mar 19 |
| | *Project or programme** | $000 (in constant prices) | | |
| | Motor Vehicles | 56 | 118 | 215 |
| | Plant, Equipment and Tools | 116 | 239 | 40 |
| | Information Technology | - | - | - |
| | Office Equipment | 10 | 115 | 15 |
| | Land and Buildings | - | 4 | - |
| | All other routine expenditure projects or programmes | - | - | - |
| | **Routine expenditure** | **182** | **476** | **270** |
| | **Atypical expenditure** | | | |
| | *Project or programme** | | | |
| | Seismic strengthening of Waipukurau Substation building | - | 98 | - |
| | Office building upgrades | - | 488 | - |
| | All other atypical projects or programmes | | | |
| | **Atypical expenditure** | **-** | **586** | **-** |
| | **Non-network assets expenditure** | **182** | **1,062** | **270** |

| CY+3<br>31 Mar 20 | CY+4<br>31 Mar 21 | CY+5<br>31 Mar 22 | CY+6<br>31 Mar 23 | CY+7<br>31 Mar 24 | CY+8<br>31 Mar 25 | CY+9<br>31 Mar 26 | CY+10<br>31 Mar 27 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| - | - | - | - | - | - | - | - |
| 100 | 38 | 275 | 25 | 25 | - | 40 | - |
| 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| - | - | - | - | - | - | - | - |
| 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| - | - | - | 150 | 200 | 200 | 200 | 200 |
| 250 | 225 | - | - | - | - | - | - |
| | | | | | | | |
| - | - | - | | | | | |
| **415** | **328** | **340** | **240** | **290** | **265** | **305** | **265** |
| - | - | - | | | | | |
| **415** | **328** | **340** | | | | | |

| CY+3<br>31 Mar 20 | CY+4<br>31 Mar 21 | CY+5<br>31 Mar 22 |
|---|---|---|
| | | |
| 430 | 370 | 270 |
| 40 | 40 | 40 |
| - | - | - |
| 15 | 15 | 15 |
| - | - | - |
| | | |
| - | - | - |
| **485** | **425** | **325** |
| | | |
| - | - | - |
| - | - | - |
| | | |
| | | |
| **-** | **-** | **-** |
| | | |
| **485** | **425** | **325** |

# 11b: Report on Forecast Operational Expenditure

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.

EDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

| for year ended | *Current Year* 31 Mar 17 | *CY+1* 31 Mar 18 | *CY+2* 31 Mar 19 |
|---|---|---|---|
| **Operational Expenditure Forecast** | **$000 (in nominal dollars)** | | |
| Service interruptions and emergencies | 336 | 264 | 271 |
| Vegetation management | 517 | 473 | 433 |
| Routine and corrective maintenance and inspection | 109 | 193 | 198 |
| Asset replacement and renewal | 431 | 476 | 489 |
| **Network Opex** | **1,393** | **1,406** | **1,392** |
| System operations and network support | 234 | 238 | 250 |
| Business support | 1,933 | 1,918 | 2,016 |
| **Non-network Opex** | **2,167** | **2,156** | **2,267** |
| **Operational expenditure** | **3,560** | **3,562** | **3,659** |
| | **$000 (in constant prices)** | | |
| Service interruptions and emergencies | 336 | 257 | 258 |
| Vegetation management | 517 | 461 | 412 |
| Routine and corrective maintenance and inspection | 109 | 188 | 188 |
| Asset replacement and renewal | 431 | 464 | 465 |
| **Network Opex** | **1,393** | **1,371** | **1,323** |
| System operations and network support | 234 | 232 | 238 |
| Business support | 1,933 | 1,870 | 1,917 |
| **Non-network Opex** | **2,167** | **2,102** | **2,155** |
| **Operational expenditure** | **3,560** | **3,472** | **3,478** |
| **Subcomponents of operational expenditure (where known)** | | | |
| Energy efficiency and demand side anagement, reduction of energy losses | - | - | - |
| Direct billing* | - | - | - |
| Research and Development | - | - | - |
| Insurance | - | - | - |
| **** Direct billing expenditure by suppliers that direct bill the majority of their consumers*** | | | |
| **Difference between nominal and real forecasts** | **$000** | | |
| Service interruptions and emergencies | - | 7 | 13 |
| Vegetation management | - | 12 | 21 |
| Routine and corrective maintenance and inspection | - | 5 | 10 |
| Asset replacement and renewal | - | 12 | 24 |
| **Network Opex** | **-** | **35** | **69** |
| System operations and network support | - | 6 | 12 |
| Business support | - | 48 | 99 |
| **Non-network Opex** | **-** | **54** | **112** |
| **Operational expenditure** | **-** | **90** | **181** |

| *CY+3* 31 Mar 20 | *CY+4* 31 Mar 21 | *CY+5* 31 Mar 22 | *CY+6* 31 Mar 23 | *CY+7* 31 Mar 24 | *CY+8* 31 Mar 25 | *CY+9* 31 Mar 26 | *CY+10* 31 Mar 27 |
|---|---|---|---|---|---|---|---|
| 276 | 281 | 286 | 291 | 296 | 302 | 307 | 312 |
| 387 | 394 | 401 | 409 | 416 | 423 | 430 | 438 |
| 201 | 205 | 209 | 212 | 216 | 220 | 224 | 227 |
| 497 | 506 | 516 | 525 | 534 | 544 | 553 | 562 |
| **1,361** | **1,386** | **1,412** | **1,437** | **1,463** | **1,488** | **1,514** | **1,539** |
| 254 | 259 | 264 | 269 | 273 | 278 | 283 | 288 |
| 2,049 | 2,088 | 2,126 | 2,164 | 2,203 | 2,241 | 2,280 | 2,318 |
| **2,304** | **2,347** | **2,390** | **2,433** | **2,476** | **2,519** | **2,563** | **2,606** |
| **3,665** | **3,733** | **3,802** | **3,871** | **3,939** | **4,008** | **4,076** | **4,145** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 258 | 258 | 258 | 258 | 258 | 258 | 258 | 258 |
| 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 |
| 188 | 188 | 188 | 188 | 188 | 188 | 188 | 188 |
| 465 | 465 | 465 | 465 | 465 | 465 | 465 | 465 |
| **1,273** | **1,273** | **1,273** | **1,273** | **1,273** | **1,273** | **1,273** | **1,273** |
| 238 | 238 | 238 | 238 | 238 | 238 | 238 | 238 |
| 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 |
| **2,155** | **2,155** | **2,155** | **2,155** | **2,155** | **2,155** | **2,155** | **2,155** |
| **3,428** | **3,428** | **3,428** | **3,428** | **3,428** | **3,428** | **3,428** | **3,428** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | 23 | 28 | 33 | 38 | 44 | 49 | 54 |
| 25 | 32 | 39 | 47 | 54 | 61 | 68 | 76 |
| 13 | 17 | 21 | 24 | 28 | 32 | 36 | 39 |
| 32 | 41 | 51 | 60 | 69 | 79 | 88 | 97 |
| **88** | **113** | **139** | **164** | **190** | **215** | **241** | **266** |
| 16 | 21 | 26 | 31 | 35 | 40 | 45 | 50 |
| 132 | 171 | 209 | 247 | 286 | 324 | 363 | 401 |
| **149** | **192** | **235** | **278** | **321** | **364** | **408** | **451** |
| **237** | **305** | **374** | **443** | **511** | **580** | **648** | **717** |

## 12a: Report on Asset Condition

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

| Voltage | Asset category | Asset class | Units |
|---|---|---|---|
| All | Overhead Line | Concrete poles / steel structure | No. |
| All | Overhead Line | Wood poles | No. |
| All | Overhead Line | Other pole types | No. |
| HV | Subtransmission Line | Subtransmission OH up to 66kV conductor | km |
| HV | Subtransmission Line | Subtransmission OH 110kV+ conductor | km |
| HV | Subtransmission Cable | Subtransmission UG up to 66kV (XLPE) | km |
| HV | Subtransmission Cable | Subtransmission UG up to 66kV (Oil pressurised) | km |
| HV | Subtransmission Cable | Subtransmission UG up to 66kV (Gas pressurised) | km |
| HV | Subtransmission Cable | Subtransmission UG up to 66kV (PILC) | km |
| HV | Subtransmission Cable | Subtransmission UG 110kV+ (XLPE) | km |
| HV | Subtransmission Cable | Subtransmission UG 110kV+ (Oil pressurised) | km |
| HV | Subtransmission Cable | Subtransmission UG 110kV+ (Gas Pressurised) | km |
| HV | Subtransmission Cable | Subtransmission UG 110kV+ (PILC) | km |
| HV | Subtransmission Cable | Subtransmission submarine cable | km |
| HV | Zone Substation Buildings | Zone substations up to 66kV | No. |
| HV | Zone Substation Buildings | Zone substations 110kV+ | No. |
| HV | Zone Substation Switchgear | 22/33kV CB (Indoor) | No. |
| HV | Zone Substation Switchgear | 22/33kV CB (Outdoor) | No. |
| HV | Zone Substation Switchgear | 33kV Switch (Ground Mounted) | No. |
| HV | Zone Substation Switchgear | 33kV Switch (Pole Mounted) | No. |
| HV | Zone Substation Switchgear | 33kV RMU | No. |
| HV | Zone Substation Switchgear | 50/66/110kV CB (Indoor) | No. |
| HV | Zone Substation Switchgear | 50/66/110kV CB (Outdoor) | No. |
| HV | Zone Substation Switchgear | 3.3/6.6/11/22kV CB (ground mounted) | No. |
| HV | Zone Substation Switchgear | 3.3/6.6/11/22kV CB (pole mounted) | No. |
| HV | Zone substation Transformer | Zone Substation Transformers | No. |
| HV | Distribution Line | Distribution OH Open Wire Conductor | km |
| HV | Distribution Line | Distribution OH Aerial Cable Conductor | km |
| HV | Distribution Line | SWER conductor | km |
| HV | Distribution Cable | Distribution UG XLPE or PVC | km |
| HV | Distribution Cable | Distribution UG PILC | km |
| HV | Distribution Cable | Distribution Submarine Cable | km |
| HV | Distribution Switchgear | 3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers | No. |
| HV | Distribution Switchgear | 3.3/6.6/11/22kV CB (Indoor) | No. |
| HV | Distribution Switchgear | 3.3/6.6/11/22kV Switches and fuses (pole mounted) | No. |
| HV | Distribution Switchgear | 3.3/6.6/11/22kV Switch (ground mounted) - except RMU | No. |
| HV | Distribution Switchgear | 3.3/6.6/11/22kV RMU | No. |
| HV | Distribution Transformer | Pole Mounted Transformer | No. |
| HV | Distribution Transformer | Ground Mounted Transformer | No. |
| HV | Distribution Transformer | Voltage regulators | No. |
| HV | Distribution Substations | Ground Mounted Substation Housing | No. |
| LV | LV Line | LV OH Conductor | km |
| LV | LV Cable | LV UG Cable | km |
| LV | LV Streetlighting | LV OH/UG Streetlight circuit | km |
| LV | Connections | OH/UG consumer service connections | No. |
| All | Protection | Protection relays (electromechanical, solid state and numeric) | No. |
| All | SCADA and communications | SCADA and communications equipment operating as a single system | Lot |
| All | Capacitor Banks | Capacitors including controls | No. |
| All | Load Control | Centralised plant | Lot |
| All | Load Control | Relays | No. |
| All | Civils | Cable Tunnels | km |

| Asset condition at start of planning period (percentage of units by grade) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade unknown | Data accuracy (1–4) | % of asset forecast to be replaced in next 5 years |
| | - | 0.50% | 66.50% | 33.00% | - | 3 | 1.00% |
| | | 18.00% | 76.00% | 6.00% | - | 3 | 20.00% |
| | - | - | - | - | - | N/A | - |
| | - | - | 94.00% | 6.00% | - | 2 | - |
| | - | - | - | - | - | N/A | - |
| | - | - | 5.00% | 95.00% | - | 3 | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | 33.00% | 67.00% | - | 3 | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | | 100.00% | - | 4 | - |
| | - | - | - | - | - | N/A | - |
| | - | 5.00% | 40.00% | 55.00% | - | 3 | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | 67.00% | 33.00% | - | 3 | - |
| | - | - | | 100.00% | - | 3 | - |
| | - | - | 57.00% | 43.00% | - | 3 | - |
| | | 1.00% | 95.00% | 4.00% | - | 2 | 1.00% |
| | - | - | - | - | - | N/A | - |
| | - | - | - | - | - | N/A | - |
| | - | - | 5.00% | 95.00% | - | 3 | 0.50% |
| | - | - | 5.00% | 95.00% | - | 3 | 0.50% |
| | - | - | - | - | - | N/A | - |
| | - | 3.00% | 45.00% | 52.00% | - | 3 | 5.00% |
| | - | - | - | - | - | N/A | - |
| | | 1.00% | 47.00% | 52.00% | - | 2 | 2.00% |
| | - | - | - | - | - | N/A | - |
| | - | 5.00% | 15.00% | 80.00% | - | 3 | 2.00% |
| | | 1.00% | 69.00% | 30.00% | - | 3 | 1.50% |
| | | 1.00% | 20.00% | 79.00% | - | 3 | 1.00% |
| | - | 5.00% | 10.00% | 85.00% | - | 3 | 2.00% |
| | - | - | - | 100.00% | - | 2 | - |
| | | 0.50% | 89.50% | 10.00% | - | 2 | 0.50% |
| | - | | 27.00% | 73.00% | - | 2 | 0.50% |
| | - | | 27.00% | 73.00% | - | 2 | 0.50% |
| | 0.15% | - | - | 99.85% | - | 2 | 0.50% |
| | - | - | 33.33% | 66.67% | - | 2 | 5.00% |
| | - | - | - | 100.00% | - | 2 | - |
| | - | - | - | 100.00% | - | 4 | - |
| | - | - | - | 100.00% | - | 4 | - |
| | - | - | 100.00% | - | - | 1 | - |
| | - | - | - | - | - | N/A | - |

# 12b: Report on Forecast Capacity

This schedule requires a breakdown of current and forecast capacity and utilisation for each zone substation and current distribution transformer capacity. The data provided should be consistent with the information provided in the AMP. Information provided in this table should relate to the operation of the network in its normal steady state configuration.

## 12b(i): System Growth - Zone Substations

| Existing Zone Substations | Current Peak Load (MVA) | Installed Firm Capacity (MVA) | Security of Supply Classification (type) | Transfer Capacity (MVA) | Utilisation of Installed Firm Capacity % | |
|---|---|---|---|---|---|---|
| Waipukurau | 8.0 | 10.0 | N-1 | | 80% | |
| Waipawa | 4.0 | 7.5 | N-1 | | 53% | |
| Takapau | 6.2 | 7.5 | N-1 | | 82% | |
| OngaOnga | 6.1 | - | N-1 Switched | 10.0 | - | |
| Wilder Road | 1.2 | - | N-1 Switched | 2.4 | - | |

[1] *Extend forecast capacity table as necessary to disclose all capacity by each zone substation*

| | Installed Firm Capacity +5 years (MVA) | Utilisation of Installed Firm Capacity + 5yrs % | Installed Firm Capacity Constraint +5 years (cause) | Explanation |
|---|---|---|---|---|
| | 10.0 | 80% | No constraint within +5 years | |
| | 7.5 | 53% | No constraint within +5 years | |
| | 7.5 | 82% | No constraint within +5 years | |
| | - | - | No constraint within +5 years | Load transfer from adjacent substations available using remote switches. |
| | - | - | No constraint within +5 years | Load transfer from adjacent substations available using remote switches. |

# 12c: Report on Forecast Network Demand

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

## 12c(i): Consumer Connections

***Number of ICPs connected in year by consumer type***

| | for year ended | *Current Year* 31 Mar 17 | *CY+1* 31 Mar 18 |
|---|---|---|---|
| ***Consumer types defined by EDB**** | | Number of connections | |
| Small Customers | | 8323 | 8343 |
| Medium Customers | | 176 | 177 |
| Large Customers | | 2 | 2 |
| **Connections total** | | **8,501** | **8,522** |

****include additional rows if needed***

### Distributed generation

| | | |
|---|---|---|
| Number of connections | - | - |
| Installed connection capacity of distributed generation (MVA) | - | - |

## 12c(ii) System Demand

| **Maximum coincident system demand (MW)** | for year ended | Number of connections | |
|---|---|---|---|
| GXP demand | | 21 | 21 |
| ***plus*** Distributed generation output at HV and above | | - | - |
| **Maximum coincident system demand** | | **21** | **21** |
| ***less*** Net transfers to (from) other EDBs at HV and above | | - | - |
| **Demand on system for supply to consumers' connection points** | | **21** | **21** |

### Electricity volumes carried (GWh)

| | | |
|---|---|---|
| Electricity supplied from GXPs | 112 | 112 |
| ***less*** Electricity exports to GXPs | - | - |
| ***plus*** Electricity supplied from distributed generation | - | - |
| ***less*** Net electricity supplied to (from) other EDBs | - | - |
| **Electricity entering system for supply to ICPs** | **112** | **112** |
| ***less*** Total energy delivered to ICPs | 103 | 103 |
| **Losses** | **9** | **9** |
| | | |
| **Load factor** | **61%** | **61%** |
| **Loss ratio** | **8.0%** | **8.0%** |

| *CY+2* 31 Mar 19 | *CY+3* 31 Mar 20 | *CY+4* 31 Mar 21 | *CY+5* 31 Mar 22 |
|---|---|---|---|
| **Number of connections** | | | |
| 8363 | 8383 | 8403 | 8423 |
| 178 | 179 | 180 | 181 |
| 2 | 2 | 2 | 2 |
| **8,543** | **8,564** | **8,585** | **8,606** |
| | | | |
| - | - | - | - |
| - | - | - | - |
| | | | |
| **Number of connections** | | | |
| 21 | 21 | 22 | 22 |
| - | - | - | - |
| **21** | **21** | **22** | **22** |
| - | - | - | - |
| **21** | **21** | **22** | **22** |
| | | | |
| 112 | 112 | 112 | 112 |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| **112** | **112** | **112** | **112** |
| 103 | 103 | 103 | 103 |
| **9** | **9** | **9** | **9** |
| | | | |
| **61%** | **60%** | **59%** | **59%** |
| **8.0%** | **8.0%** | **8.0%** | **8.0%** |

## 12d: Report Forecast Interruptions and Duration

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

| | *Current Year* | *CY+1* | *CY+2* | *CY+3* | *CY+4* | *CY+5* |
|---|---|---|---|---|---|---|
| for year ended | **31 Mar 17** | **31 Mar 18** | **31 Mar 19** | **31 Mar 20** | **31 Mar 21** | **31 Mar 22** |
| **SAIDI** | | | | | | |
| Class B (planned interruptions on the network) | 78.5 | 72.7 | 72.7 | 72.7 | 72.7 | 72.7 |
| Class C (unplanned interruptions on the network) | 60.2 | 82.7 | 82.7 | 82.7 | 82.7 | 82.7 |
| **SAIFI** | | | | | | |
| Class B (planned interruptions on the network) | 0.36 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 |
| Class C (unplanned interruptions on the network) | 1.56 | 3.29 | 3.29 | 3.29 | 3.29 | 3.29 |

CENTRALINES
LIMITED

# CERTIFICATION FOR YEAR-BEGINNING DISCLOSURES

Pursuant to Schedule 17

We, Jon Edmond Nichols and Nicholas Matthew Story, being directors of Centralines Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

a) The following attached information of Centralines Limited prepared for the purposes of clauses 2.4.1, 2.6.1, 2.6.3, 2.6.6 and 2.7.2 of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.

b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Centralines Limited's corporate vision and strategy and are documented in retained records.

Director Date: 29th March 2017

Director Date: 29th March 2017

**CENTRALINES LIMITED**
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